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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/745,525	12/26/2000	Qingwen Hu	91436-286	2154

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EXAMINER

NGUYEN, QUYNH H

ART UNIT	PAPER NUMBER
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2642

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/745,525	Applicant(s) HU ET AL.	
	Examiner Quynh H Nguyen	Art Unit 2642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

2. Claims 1-3, 7-10, 32-37, 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gavrilovich (U.S. Patent 4,484,030).

Regarding claims 1, 32, and 33, Gavrilovich teaches receiving an indication of utilization of a trunk (off-line facilities record the percentage of time that a given trunk is being used, i.e. load balance) (col. 2, lines 3-7), wherein the trunk (Fig. 2, 110-112) carried on one of the plurality of links connect to one of the plurality of switches (Fig. 2, 106-109); and if the utilization exceeds a threshold, initializing a degree of adaptation (col. 3, lines 27-48). Considering the trunk "defective" reads on the claimed "first degree of adaptation".

However, Gavrilovich does not explicitly suggest different degree of adaptation, for example, first degree.

The claims imply different degrees, but do not positively recite that. Thus, considering the trunk "defective" may be read as the claimed "first degree of adaptation".

Regarding claims 2, 10, 34, and 41 Gavrilovich teaches consulting the database and based on data in the database ("types of traffic measurements") such as: counts of

total attempts, counts of unacknowledged communications, and measurements of percent of usage (col. 3, lines 1-7) to determine a course of action.

Regarding claims 3, 7, 8, and 35-37, Gavrilovich teaches when the number of unacknowledged attempts exceeds a predetermined threshold for the particular trunk group, more measurements are taken in order to determine which equipment is defective or no longer active (col. 3, lines 7-52) and therefore preventing new connections established on that particular equipment, for example the particular trunk.

Regarding claim 9, Gavrilovich teaches if the utilization of the trunk exceeds a second threshold, for example the trunk is busy or idle, initializing a second degree of adaptation (col. 11, lines 18-34).

Claims 40 and 42 are rejected for the same reason as discussed above with respect to claims 1 and 3, respectively. Furthermore, Gavrilovich teaches computer-executable instructions (subroutines 155, 156, 176, 177, etc and programs 150, 178, etc).

3. Claims 1, 32, 33, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ash et al. (U.S. Patent 4,669,113).

Regarding claims 1, 32, and 33, Ash et al. teach in integrated network controller for a dynamic nonhierarchical dynamic routing on the alternate paths available in the switching system, the data network including a plurality of switches (Fig. 2, SW 10) and a plurality of links connecting the switches (Fig. 2, 11), the method comprising: at a given one of the plurality of switches (Fig. 2, SW 10), each of the switches contains memory for storing information regarding the trunk links between itself and other

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switches (col. 2, lines 22-32), where the one of the plurality of links connects to the given one of the plurality of switches. Ash et al. further teach the routing sequences to minimize potential blocking in the network by evaluating the least loaded path for each potential connection of two switches in the system (Abstract and col. 4, lines 58-68), then preplanning changes in the first choice path and any required changes in the subsequent choice paths to the switching offices (col. 8, lines 59-68). In one embodiment, the concept of trunk reservation on a link deals with the traffic intensity between the offices directly connected to the link, for example reserves trunks in each link where the high blocking indicator level exceeds 1, to determine whether to pick the first choice path or other subsequent choice paths (col. 13, line 12 through col. 14, line 68) reads on claimed "if the utilization of the trunk exceeds a first threshold, initializing a first degree of adaptation".

However, Ash et al. do not teach the measurement of the utilization of a single trunk.

It would have been obvious to one of ordinary skill in the art at the time the invention was made that it is necessary to monitor the utilization of each trunk in the group of trunks in order to obtain the measurement.

Claim 40 is rejected for the same reason as discussed above with respect to claim 1. Furthermore, Ash et al. teach computer-executable instructions (Fig. 7-9).

4. Claims 4-6, 14-29, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gavrilovich (U.S. Patent 4,484,030) in view of Ash et al. (U.S. Patent 4,669,113).

Regarding claims 4-6 Gavrilovich does not teach the specific characteristics relate to a priority, a destination, and a source of the new connections.

Ash et al. teach trunks in service table, trunk status map database, routing database, and routing candidate list that contains lists of the path candidates for each originating switch (OS) - terminating switch (TS) pairs in the network, each OS-TS pair has a unique routing sequence and each routing sequence has a "first choice" path and "subsequent choice" paths (col. 7, line 1 through col. 8, line 48) reads on claimed "the specific characteristics relate to a priority of the new connections, relate to a destination or source of the new connections".

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the features mentioned above, as taught by Ash, in Gavrilovich's system, in order to have specific characteristics relate to the new connections to assist routing purposes.

Regarding claims 14 and 24, Gavrilovich does not teach if the utilization of the trunk exceeds a third / fourth threshold, initializing a third / fourth degree of adaptation, respectively.

Ash et al. teach the concept of trunk reservation on a link deals with the traffic intensity between the offices directly connected to the link, for example reserves trunks in each link where the high blocking indicator level exceeds 1, to determine whether to pick the first choice path or other subsequent choice paths. The number or reserved trunks is related to the size of the trunk (col. 13, line 12 through col. 14, line 68).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the feature of adapting different degree of adaptation in case of the trunks exceeds a threshold, as taught by Ash, in Gavrilovich's system, in order to have a better system with different choice of degree of adaptation according to different level of defined threshold.

Claims 15 and 25 are rejected for the same reasons as discussed above with respect to claim 2.

Regarding claims 16-22, 26-29, and 39, Ash et al. teach a routing database contains two lists of the path candidates for each OS-TS ("path and trunk connects of switches") pairs in the network ("candidate connection"), each path candidate may be designated as primary candidate, a secondary candidate, a final routing candidate, etc. (col. 7, lines 27-47) reads on the third degree of adaptation; selecting the candidate connection is based on specific characteristics of the information stored in memory (col. 2, lines 22-32); and it would have been obvious to establish the alternate path before the connection is removed from the path to maintain the communication link and avoid service interruption that would affect value of customer service and lost of revenue.

Regarding claim 23, Ash et al. teach repeating the selecting process ("do loops" - col. 14, lines 11-16) for additional candidate if the utilization of the trunk continues to exceed the threshold to minimize potential blocking and overflow in the network.

5. Claims 11-13, 30, 31 38, and 43-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gavrilovich (U.S. Patent 4,484,030) in view of Ackerley et al. (U.S. Patent 6,377,677).

Claims 11, 12, 38 are rejected for the same reasons as discussed above with respect to claims 2 and 3. However, Gavrilovich does not teach sending a congestion notification to a source of the misbehaved connection and alerting the policy database to reduce a priority associated with the misbehave connection.

Ackerley et al. teach a method of routing calls in the communications network. The signaling system in use between PBXs will send a congestion message from the terminating local exchange to the originating PBX in the event that a failure has occurred (col. 1, line 61 through col. 2, line 8).

It would have been obvious to one of ordinary skill in the art to incorporate the feature of sending a congestion notification to a source of the misbehaved connection, as taught by Ackerley, in Gavrilovich's system in order to inform the source and alert the database before generating new routing sequences.

Regarding claims 13, 30 and 31, Gavrilovich does not teach altering the policy database to reduce a priority associated with the misbehaved connection. Altering the policy database to reduce a priority associated with the misbehaved connection is well known and the advantage of using it is also well known. For example, removal of a failure trunk from the network.

Claims 43-46 are rejected for the same reason as discussed above with respect to claims 7, 8, 11, and 16. Furthermore, Gavrilovich teaches computer-executable instructions (subroutines 155, 156, 176, 177, etc and program 178).

Response to Arguments

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6. Applicant's arguments with respect to claims 1-46 have been considered but are not persuasive.

Applicant argues that Gavrilovich teaches a functional circuit being substantially less than utilization of other functional circuits, and none of which relates to utilization of a functional circuit exceeding a threshold. Examiner respectfully disagrees. Gavrilovich teaches (col. 2, lines 3-10) that trunks that have an unusually low average holding time that equals to the ratio of usage to attempt count. The above statement means if the average holding time is low, then the usage is low and the attempt count is high. The high attempt count is equivalent to exceeding a threshold.

Applicant argues "the method of claim 1 allows for the routing of connections through a connection-oriented data network to adaptively react to varying degrees of over utilization of fully functioning trunks". Examiner respectfully submits that the above assertion is not in claim 1.

Examiner agrees with Applicant that the adaptation of a network to various traffic patterns performed in Ash includes a number of idle trunks in the link and not utilization of a single trunk. As stated under section 3, pages 3 and 4 in the previous office action that Ash et al. do not teach the measurement of the utilization of a single trunk. However, it would have been obvious that it is necessary to monitor the utilization of each trunk in the group of trunks in order to obtain the measurement. Applicant further argues that in Ash, there is no disclosure of the measuring of the utilization of a single trunk. Examiner respectfully disagrees. Ash teaches (col. 13, line 50 through col. 14, line 10) that the trunk reservation on a link deals with the traffic intensity between the

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offices directly connected to the link and when the traffic between those offices is high, a selected number of trunks on the direct link are reserved for traffic originating and terminating in those offices. Therefore, in Ash adaptation network, it would be necessary to measure the utilization of trunks in order to reserve more trunks in the event of traffic intensity.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quynh H. Nguyen whose telephone number is 703-305-5451. The examiner can normally be reached on Monday - Thursday from 6:30 A.M. to 5:00 P.M.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar, can be reached on (703) 305-4731. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

qhn

Quynh H. Nguyen
November 24, 2004



BENNY TIEU
PRIMARY EXAMINER

A.U. 2642